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Approved For Release 2001/03/06 : CIA-RDP84-00933R000300310001-6

ODP # 0-251

3 MAR 1980

OC-M80-156

MEMORANDUM FOR: Director, Consolidated SAFE Project Office/ODP
INFORMATION: Director of Data Processing
25X1A FROM: [REDACTED]
Director of Communications
SUBJECT: General Purpose Bus Requirements (U)
REFERENCE: MFR dated 27 November 1979, Subject: "SAFE
Bus OC/ODP Meeting"

1. Attached is a copy of the wideband bus requirements document received from the Office of Data Processing. With the exceptions and additions contained in the following paragraphs, it should be forwarded to [REDACTED] as the basis for the "extended requirements" study. (U) 25X1A

2. The wideband bus will provide a higher degree of protection for data than does the existing copper grid, since end-to-end encryption will be employed. However, there is no overriding reason for reterminating all terminals to the bus immediately upon its activation, or to force activation of the bus for general purpose use before grid capacity is reached. OC plans to pursue a general purpose bus development program that will permit connection of terminals to the bus by FY-84, when grid saturation is anticipated. (S) A9c2.1

3. Copper grids are in place in several Agency annexes, and plans exist for grid installations in other buildings. Unless a requirement develops for an unusually heavy concentration of terminals in a particular annex, the bus system will be confined to the Headquarters Building. (S) A9c2.1

4. The Office of Communications has been tasked with providing connectivity for [REDACTED] terminals in the Headquarters Building during the FY-84/85 time frame. The [REDACTED] study should assess the feasibility of connecting these terminals to their respective central retrieval facilities via the bus. However, the [REDACTED] requirement should not significantly influence overall bus architecture. 25X1A 25X1A

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SUBJECT: General Purpose Bus Requirements (U)

Bandwidth reduction techniques should be considered to permit utilization of a single, standard 5-MHz bus channel and, if possible, the crypto and bus interface equipment developed for the SAFE program. Because of the high per-terminal bus connectivity costs anticipated, the TRW study should be expanded to include the possible use of fiber optic connections for this requirement. (S) A9c2.1

5. Although no formal tasking has been received to date, requirements for facsimile service in Headquarters Building registries are likely to surface in the future. The possibility of point-to-point facsimile service on a call-up basis via the wideband bus should be examined by [REDACTED] (U)

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25X1A

Attachments:
As Stated

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SECRET

28 December 1979

ATTACHMENT

MEMORANDUM FOR THE RECORD

SUBJECT: Bus Communications Requirements Document

REFERENCE: ODP-9-1718, dated 18 December 1979

Per discussion between [REDACTED] TL
ODP, paragraph 2, sentence 2 is removed from referent
document (attached). Further, the document will be used by
OC as the focal tasking document from ODP for bus require-
ments in the preparation of the 1982 program plan.

STATINTL

Attachment:
As stated

APPROVED:

STATINTL

12-28-79
Date

1/3/80
Date

ODP-9-1718
18 December 1979

STATINTL

MEMORANDUM FOR: [REDACTED]
Chief, Engineering Division, OC

STATINTL

FROM : [REDACTED]
Chief, Engineering Division, ODP

SUBJECT : ODP BUS Requirements

1. This memorandum will present the BUS requirements in three sections. Section I will describe functional requirements that must be included in the BUS system. Section II will describe four major types of terminals that are expected to be supported on the BUS system. Section III will present our best estimate of the number of each type of terminal described in Section II that could be on the BUS between 1980 and 1990.

2. This set of requirements is intended to support the design of the BUS system so that it can accommodate the non-SAFE ODP requirements. ~~These requirements are not intended to support any procurement actions or detail design activities.~~ It is my intent that once an agreement is reached on an overall BUS design, Engineering Division will provide you additional detailed information as required.

Section I - Functional Requirements

1. Terminal to Host Connection

From any terminal it must be possible for the user to easily connect to any host computer on the BUS, to which the user and terminal have authorized access. Terminals include RJE stations.

It also must be possible to establish a default connection for a particular terminal to a particular host.

SUBJECT: ODP BUS Requirements

2. Printer to Host Connection

It must be possible to assign a printer to any particular host. The option must be available for an authorized user/operator to temporarily connect a local printer to a different host computer.

3. Host to Host Connection

It must be possible for a host computer on the BUS to connect to another host on the BUS for file transfers. Typically one of the host computers would be a general purpose mini-computer host in a customer area or a special-purpose mini-computer. Today this function is accomplished using a bisync connection to the JES3 system.

It must also be possible for a host computer to connect to a different host as if it were an interactive terminal at the same time it is supporting users at terminals. An example of this type of connection would be where a mini-computer normally supports a user with an application in the mini-computer, but occasionally the user needs access to another host.

The data rate for file transfer should be from 19.2KB to 56KB or higher if possible. The data rate for terminals should be up to 19.2KB.

4. Out Building Support

The BUS system design should provide for the installation of a BUS in major Agency out buildings (from 4 to 8) to service all terminals in the building. The users of the BUS in such a building should have the same capability as in Headquarters, except that there may be a limitation on data transfer rate between the two buildings.

5. Usage Statistics

The BUS system must provide accounting on the utilization of each terminal on the BUS to each host similar to the existing Comten Accounting Information system.

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6. Security

The BUS system must enforce security rules that would prevent certain connections between terminals and host computers or host to host connections.

7. Host Computers

Large IBM Hosts

The BUS will be connected to thirteen IBM type host computers in 1984 and sixteen IBM type computers by 1990. The number of active terminals on the IBM type hosts would vary from 100 to 600 for a single host.

Mini-Computer Hosts

The BUS will be connected to 25 to 50 mini-computer hosts by 1986. Each mini-computer would support from 4 to 64 active terminals. It would also require from 1 to 8 concurrent connections to other hosts for file transfer. In some cases the mini-computer will also appear to a large IBM host as from 1 to 16 interactive terminals.

Section II - Major Terminal Types

1. Standard CRT Terminal

a. Data Rate

19.2KB normal speed, option for 9600, 4800 and 2400 baud speeds.

b. Block Size

Variable up to 256 bytes.

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c. Protocol

Block type of protocol that provides flow control and re-transmission. SDLC for level 1 and 2 is one possibility.

Clustering and Multi-Drop

The BUS system must support clustering of terminals in a single area from one controller where each terminal may be connected to a different host on the BUS. Also, the design must support a multi-drop line with several terminals, each of which could be connected to a different host.

d. Utilization Profile

Low average utilization of the BUS would be expected. CRT terminals typically have less than 5% utilization on input to the host and 10% utilization on output from the host.

e. Source

These terminals will generally be procured in large numbers according to Agency specifications. The new Agency standard Delta Data 7260T is a good example. However, where possible, accepted industry standards should be used at the interfaces between the terminal and the BUS.

2. Printers

a. Data Rate

Maximum speed would be 19.2KB optional speeds 9600, 4800, 2400, 1200, 600 and 300 baud.

b. Block Size

2K to 4K.

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c. Protocol

IBM 3780 protocol and its replacement. Lower speed would be async, with support of X-on, X-off for flow control.

d. Utilization Profile

Constant usage would be expected during peak periods. Number of hours per week would vary from 2 to 40, during prime shift.

e. Source

The existing inventory of Hetra 3780 printers, existing Design 100 low speed printers, IBM 6670 or similar type of device, Sanders Technology Media 12/7 writer, TI Silent 700 or similar type of device are the principal printers. In all cases, standard commercial printers would be bought so that the interface should be an industry standard, and should require minimum or no modifications, except for TEMPEST, to the printer and its software.

3. Word Processing Devices

a. Data Rate

Normal speed would be 19.2KB with optional speeds of 9600, 4800, 2400, and 1200 baud.

b. Block Size

256 to 4K with most less than 1K.

c. Protocol

IBM 3780 and async TTY or other industry standard protocols.

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d. Utilization Profile

Low average utilization of the BUS would be expected. A user would typically want to connect to a system to route a data file to some source or receive a data file from a host CPU. The BUS must provide the capability to establish a continuous connection to a host computer so the computer could send a data file to the word processor when it was available. This includes the use of a printer on the BUS as an output device for the word processor system.

e. Source

In general, these systems will be commercial systems that are bought for a particular Agency group. While there will be efforts to standarize, it is reasonable to assume that there will still be a variety of word processing systems installed in the Agency. Standalone systems and clustered systems are both expected in large numbers.

4. Special Purpose Terminals

a. Data Rate

56KB to 2400 baud.

b. Block Size

256 to 4K.

c. Protocol

Any of the common industry standard.

d. Utilization Profile

Similar to the standard CRT terminals.

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e. Source

Today the Tektronix and Ramtek are two examples of special purpose terminals connected to ODP systems. Graphic terminals will continue to be special purpose terminals that will be selected based on a specific customer requirement. These terminals must be installed in both Headquarters and out buildings.

Section III

Is shown as Attachments 1 thru 4.

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